Hilary Putnam

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In many ways Hilary Putnam's writings constitute the ideal introduction to his thought. For they are not only lucid and accessible, but also self-reflective, providing numerous signposts to his philosophical motivations, changes of mind and sources of inspiration. Rather than simply 'introducing' Putnam's thought, therefore, the papers collected here are mostly interpretative, seeking, in particular, to trace changes in the broader philosophical environment Putnam's thought was part of – changes that in many cases were precipitated by his novel ideas – and chart the transformation of Putnam's own thinking against the background of these developments. In tracing the evolution of Putnam's thought, they provide a window onto the dynamics of the Anglo-American philosophical arena since Putnam's emergence, in the 1960s, as a leading philosopher. One such transformation is the demise of logical positivism, still dominant in Putnam's formative years, and a growing interest in Wittgenstein and American pragmatism. A related trend is the shift away from the philosophy of science, which loses the primacy it enjoyed in the 1950s and 1960s, and the corresponding repositioning of the philosophy of mind, which takes its place. Most significant, perhaps, is the increasing salience of the ethical perspective in the wake of the growing desire that philosophy play a more direct role in our lives.

Putnam, who has always been politically engaged, never distanced himself from the ethical. Professionally, however, he was educated in analytic philosophy at a time when it tended to relegate ethical and existential issues to the sidelines. As his thought matured, he became increasingly eager to counter this tendency, and his later works bear such ethically oriented titles as *Renewing Philosophy, Realism with a Human Face, Words and Life.*

Hilary Putnam was born in Chicago in 1926. At the University of Pennsylvania, where he earned his undergraduate degree, Putnam majored, along with Noam Chomsky, in the emerging field of linguistic analysis. His graduate studies were divided between Harvard University, where he studied with Quine, Hao Wang, C. I. Lewis and Morton White, and

UCLA, where he wrote his Ph.D. dissertation, under the supervision of Reichenbach, on the concept of probability. Moving to Princeton University in 1953, he made the acquaintance of Carnap and Kreisel, and worked intensively in mathematical logic, proving, with Martin Davis and Julia Robinson, the insolvability of Hilbert's tenth problem.[1] Since 1965, Putnam has been at Harvard, writing on a broad spectrum of philosophical topics; he has also taught and lectured at universities around the world.

Putnam grew up in a home steeped in intellectual and political activity. His father, Samuel Putnam, was a well-known writer and translator, an active communist, and a columnist for *The Daily Worker*. During the Vietnam War, Hilary Putnam, a member of SDS (Students for a Democratic Society), and the Progressive Labor Party, a Maoist group, took an active part in protesting the war and campaigning for social reform. Around 1972, however, he became disillusioned with communism, a turn of events that had considerable impact, it seems, on his subsequent philosophical development.

I.   CHANGE AND CONTINUITY

As Putnam's thought is known for its remarkable dynamism and self-critique, I would like to begin with some reflections on methodological issues having to do with intellectual transformations. The identification of change or continuity is of great concern to anyone interested in the history of an idea, a theory, an individual's lifework or a philosophical tradition. Yet a naïve attitude toward the notions of change and continuity in the intellectual sphere is nonetheless not uncommon. This is not the place for a thorough analysis of this complex question; the following remarks are intended only to argue that it calls for deeper reflection than it usually receives. While focusing on Putnam's work, these comments on the problems surrounding the assessment of change and continuity in an individual's oeuvre seem to me to be of more general relevance.

First, we must remember that, like all judgments of difference and similarity, the perception of change is description-dependent. Consider realism. If we choose to frame our description in terms of this rubric, the avowal of realism is a unifying theme running through Putnam's contributions in different areas over the years. If, however, we introduce distinctions between different shades of realism, as Putnam himself does, change will be evident. Furthermore, authors may deliberately or subconsciously use different words to convey similar ideas, or the same words to express different

ones. Borges takes the latter possibility to paradoxical extremes in his story "Pierre Menard, Author of the Quixote," where Menard devotes his life to *rewriting* a few chapters of *Don Quixote* – not copying the work or composing a new version, but actually rewriting it. The new text is completely identical to the relevant part of Cervantes's novel, but constitutes, we are told, an entirely different literary work. Even in less dramatic contexts, we must be sensitive to the fact that there is no strict correlation between difference (identity, similarity) in formulation and difference (identity, similarity) in content. For example, having quoted from one of his own earlier papers, Putnam states: "I still agree with those *words.* But I would say them in a rather different spirit now."[2] And this is as true of pronouncements made by the same individual as it is of those made by an author and his colleagues, disciples, critics, sources of inspiration, and so on. An author or interpreter might have any number of reasons (or motives) for seeking to minimize or maximize a difference or similarity by way of a particular formulation: admiration and deference, envy and resentment, the desire to appear orig- inal, or, on the contrary, loyal to a tradition, and so on. Apart from their importance in the lives of creative individuals, these considerations are also of immense social, political and cultural significance.

Second, assessment of difference and similarity is value-laden. In most cases we are not interested in change or difference per se, but in *significant* changes and differences, where significance, as well as similar attributes, is not merely found there, but actively *projected* onto the text or problem in question. Consider the following quotation, stripped of names and specific subject matter to emphasize the generic nature of the sentiments expressed:

> How does X's position on L differ from Y's, we must now wonder? Not on any point of substance, it may seem, even though X and Y describe their positions in different philosophical language, and X, even if not always also Y, sees them as opposed.[3]

Here the critic, X, is portrayed as stressing the significance of his disagree- ment with Y, whereas Y, who is being critiqued, is portrayed as downplaying it. The author of the passage seeks, in turn, to engage the reader in his at- tempt to find out whether, in fact, there is any significant difference between the two positions. Naturally, no simple answer is forthcoming; it takes the whole paper from which this quotation is taken to reach a conclusion. Works that seek to identify anticipations, points of departure, culminations, part- ings of the ways, and so on, can hardly be expected to be explicit about all the underlying assumptions involved in such endeavors, but the reader cannot afford to be naïve about the methodological and ethical issues involved.

Third, the individual's self-perception, and the rhetoric used to convey this perception to the reader, affect the reader's interpretation. Putnam's rhetoric is no doubt primarily a rhetoric of change. Expressions such as 'I used to think,' 'I no longer believe,' 'I have come to realize,' and even 'my former self,' recur in his writings, impressing upon the reader the intensely dynamic thought processes that Putnam experiences himself as going through. In comparison, other philosophers, for instance Quine, seem to prefer the language of stability and single-mindedness, yet upon closer scrutiny, their writings reveal realignments that such rhetoric tends to obscure. Though the received image of Putnam's philosophy is Heraclitean – self-critical and ever-changing – the essays in this volume often draw to our attention equally if not more important continuities of content and approach.

From the methodological point of view, the general gestalt we project onto the oeuvre in question is important, for it dictates our working assumptions. Our assessment will determine whether we assume continuity unless we find explicit indications of change, or tend to see earlier positions as no longer upheld if they are not explicitly reaffirmed. Yet we can hardly expect an author to set down each of the changes to older views mandated by newer ones, and still less to reiterate in each work the earlier views and arguments that remain unimpugned by the more recent developments. The interpretation of Wittgenstein's writings is a good example. The common perception of a split, a total break between 'the later Wittgenstein' and the views expressed in the *Tractatus*, engenders readings very different from those which emerge from the more unified picture that has become current in recent years. In Putnam's case, the impression of flux leads many readers to assume that he has retracted his main pre-1976 arguments. The most important example in this context is the externalist conception of meaning developed in "The Meaning of 'Meaning'" (1975b, 12). Although externalism was put forward in 1975 (i.e., prior to the break with metaphysical realism), it also plays a central role in Putnam's later writings, and constitutes the core of *Reason, Truth and History* and *Representation and Reality*. The projection of a dramatic split between an 'earlier' and a 'later' Putnam has led readers to regard the persistent affirmation of the "Meaning of 'Meaning'" approach as a kind of puzzle that Putnam is called upon to resolve. If this is a misconception, as several papers in this volume seek to demonstrate, it should induce us to be more cautious about Putnam's alleged renunciation of other earlier arguments. Indeed, the principal insights of such classic papers as "The Refutation of Conventionalism" (1975b, 9) and "It Ain't Necessarily So" (1975a, 15) continue to inform Putnam's philosophy in later years.

The wiles of terminology may be responsible for some of the confusions surrounding internal realism, a phenomenon familiar from other episodes in the history of ideas. The theory of relativity, for instance, was, much to Einstein's dismay, appropriated by cultural relativists, who applauded its relativistic implications but failed to recognize the crucial role it assigned to invariance across frameworks. In Putnam's case, the term "*internal* realism" has often been associated with images and terminology that turned out to be similarly misleading. First, 'internal' suggests a contrast with 'external,' and thus erroneously implies a contrast between internal realism and the externalist conception of meaning advocated in "The Meaning of 'Meaning.'" As noted, however, the externalist conception of meaning is not merely *retained* in Putnam's later writings, but explicitly employed in arguments defending internal realism against metaphysical realism. Second, the internal–external metaphor is frequently invoked by relativists to convey the difference between truth relative to a framework – truth for an individual or a community – and truth in the objective sense upheld by realists. Putnam's use of the internal–external idiom undoubtedly lent itself to relativist (mis)readings of his position. While he has made a sustained effort to distance himself from relativism, and other terms ("natural realism," "common-sense realism") eventually replaced "internal realism," the confusion wrought by the original terminology has yet to dissipate entirely.

In using the internal–external metaphor, the contrast Putnam wants to highlight is that between the human perspective and a super-perspective purporting to capture reality in itself, unmediated by human language and human concepts. It is the emptiness of the super-perspective that Putnam's internal realism seeks to drive home. Here Putnam is allying himself with the tradition of Kant, the American pragmatists, and (at least) the later Wittgenstein, in urging us to "give up the picture of Nature as having its very own language which it is waiting for us to discover and use" (1994, 302). The relativist, on the other hand, uses the metaphor of the internal-external divide to argue that evaluations of a given proposition's rationality or morality are made from within a particular theory, framework, or culture, and cannot, in general, be weighed against each other. In the context of the philosophy of science, Kuhnian paradigms, allegedly self-contained and incommensurable, reflect this relativistic schema. Where the relativist challenges the notion of objective truth, Putnam stresses its centrality to human life. Giving up the metaphysical super-perspective, he argues, does not compel us to give up the concept of truth cherished by realists, namely, truth independent of what individuals or communities believe and stipulate. And whereas the relativist's use of the internal–external metaphor allows for incommensurable alternatives, neither of which is objectively

valid, each making sense on its own 'internal' terms, Putnam's use of the same metaphor, while connoting the vacuousness of the external, upholds truth and objectivity. Once more, we see, similar terminology can serve diverse philosophical agendas.

II.   THEMES AND SIGNPOSTS IN PUTNAM'S PHILOSOPHY

Putnam brings to philosophy the analytical tools of the logician, the creative imagination of the theoretical scientist, and the sensitivities of the moral philosopher. He has made substantial contributions to the philosophy of language, the philosophy of mind, and the philosophy of science and mathematics. Indeed, in these areas Putnam's philosophy would be an essential part of any survey of contemporary philosophy. Putnam's oeuvre includes well-known theories and research programs such as functionalism, quantum logic and the causal theory of reference; critical arguments and thought experiments such as the widely discussed Twin Earth argument; and numerous studies of contemporary philosophical positions such as realism, skepticism, relativism and pragmatism. Let me comment briefly on the major issues in Putnam's work that are addressed by the contributors to this volume.

Realism

A persistent theme in Putnam's philosophy is the avowal of realism, a position that creates space for objective truth and objective, albeit fallible, knowledge. An integral part of Putnam's defense of realism is his thoroughgoing critique of nonrealist positions such as instrumentalism and conventionalism, which had been popular with the logical positivists, and relativism, which followed close on the heels of positivism as a result of the impact of Kuhn and Feyerabend. One of Putnam's responses to these nonrealist positions is the argument from success: while realism has a simple explanation for the success of science – it works because it is true – for the nonrealist, the success of science is a miracle. The argument from success, and the inference to the best explanation on which it rests, provoked heated debate but are still the standard defense of realism. Yet the question of why science sometimes *fails*, it has come to be acknowledged, provides a better means of sharpening our intuitions about realism. Putnam's stance on realism started to change as he pondered two related questions. First, is it possible that our best theory of the world, a theory that satisfies every

empirical and methodological constraint, is nonetheless false? Inasmuch as realist truth is a radically nonepistemic notion, the realist, it seems, is committed to answering in the affirmative, but in 1976, this answer was beginning to make Putnam uncomfortable. Seeking to avoid such a transcendent notion of truth while maintaining other realist intuitions, he introduced the distinction between metaphysical and internal realism.[4] The second question addresses a different aspect of what it means for a theory to capture truth, namely, its amenability to different interpretations, or, more technically, to different models. How can a theory represent reality objectively if fundamental features of its representation, such as the number of objects it postulates, can vary from one interpretation to another? Model-theoretic considerations thus played a significant role in the transition to internal realism. Putnam now maintains that for the metaphysical realist who believes there must be an objective criterion singling out a uniquely correct reference relation from a range of possibilities, the model-theoretic problem, the problem of the availability of multiple interpretations, is insurmountable. From the perspective of internal realism, however, reference, being an essential component of our conceptual apparatus, is unproblematic; it cannot and need not be anchored in 'objective' reality by yet another layer of theory.

At first glance, the problem of multiple interpretations appears fairly abstract. In his contribution, "Structural Realism and Contextual Individuality," John Stachel shows that, quite to the contrary, the problem looms large in twentieth-century physics. As he explains, one of its dramatic applications is the so-called 'hole argument,' which, for a couple of years, held up development of the General Theory of Relativity. Defending his own *structuralist* version of realism, Stachel examines the relation between the reality of structures and the reality of individuals from the physicist's point of view, but goes on to pursue the implications of his analysis for the relation between the individual and the social dimensions of the human life.

Internal realism, Putnam's position as of 1976, stirred up controversy that has yet to be resolved.[5] Critics typically raise the objection that Putnam's third way between metaphysical realism and nonrealism in fact falls back into one of the two positions he has supposedly rejected. No matter how vigorously Putnam protests attempts to construe internal realism as a type of relativism, there is always a critic from the (philosophical) right, so to speak, who insists on so construing him. And no matter how hard he tries to bring out the differences between himself and the metaphysical realist, there is always a critic from the left who argues that he has not succeeded in distancing himself from that position. Over the years,

Putnam has reworked some aspects of his new position: in the early 1980s he was close to identifying internal realism with verificationism, with long-term warranted assertability replacing the notion of truth; later he rejected this view, as well as attempts to reduce the concept of truth to other concepts or treat it as redundant. Furthermore, under the growing influence of Wittgenstein's work, Putnam makes it exceedingly clear that internal realism is not a philosophical theory that aspires to emulate scientific theories. From this perspective, the argument from success, motivated by the analogy between science and philosophy, seems dated. In "Realism, Beyond Miracles," Arthur Fine and Axel Mueller emphasize the pragmatic dimension of Putnam's realism. Rather than explaining our success in representing reality, they argue, his realism seeks to explain our practices in the realm of inquiry and communication. On their interpretation, this pragmatic motivation serves as a unifying element throughout the dynamic evolution of Putnam's various versions of realism.

Externalism

Generally speaking, the theory of meaning is a central focus of twentieth-century philosophy. Specifically, the controversy over realism has pivoted on such meaning-theoretic considerations as the relation between truth, verification and meaning. The logical positivists' verifiability principle of meaning, for instance, was utilized in arguments against realism, particularly in the philosophy of science. As Putnam recognized, the realist's major challenge is therefore to articulate a realist conception of meaning compatible with a realist view of science as a truth-directed enterprise. The prevailing conceptions of meaning, he argued, either tie meaning too closely to the observable, consigning the theoretical to meaninglessness, or construe meaning as implicitly defined by entire theories, with the result that theoretical change ipso facto constitutes meaning-change. The latter alternative is particularly unsatisfactory if combined with the additional premise that meaning-change is indicative of change of reference, for it then yields an extremely relativistic account of science on which different theories, referring, as they do, to different entities, cannot be rationally compared with one another.

"The Meaning of 'Meaning'" puts forward the sought-after alternative to these nonrealist conceptions of meaning.[6] The central idea here is that "meanings just ain't in the head," that is, the focus of meaning assignment shifts from sensations, ideas and mental states to external reality – the entities spoken of. Moreover, there is a shift from individual to social

determination of meaning: to know the meaning of words like 'gold,' speakers are not required to be able to tell gold from similar alloys; it is enough that there are experts in the linguistic community able to do so. Two important consequences follow. On the one hand, speakers can refer to the same entities even if the beliefs, theories, definitions, or images they associate with terms referring to these entities differ radically. This aspect of externalism addresses the threat of relativism. On the other hand, speakers can associate a name or predicate with the same type of mental image yet differ as to its meaning. Putnam's celebrated Twin Earth thought experiment is designed to reinforce the latter intuition. If, on Twin Earth, the substance that looks, feels, and functions like water in fact has a different chemical structure than water does, then despite the identity of the mental images associated with 'water' in the minds of inhabitants of Earth and Twin Earth, we would not (and should not) say there is water on Twin Earth. On Putnam's account, then, it is part of the meaning of words like 'water' that they refer to the stuff we call water in the actual world. Though it is neither analytic nor even irrevisable that the molecular formula of water is H_2O, the meaning of 'water' on Twin Earth, where the chemical structure of the substance called 'water' is different, cannot be identical with the meaning of 'water' on Earth.

To complete the realist account of meaning, Putnam tackled the question of how reference is actually fixed, a question also addressed in Kripke's work on reference and rigid designation. If reference is fixed by theory, it is liable to change with theoretical change. On the Kripke-Putnam alternative, however, reference is fixed by causal relations between speakers and their environment: hence the term 'externalism.'[7] Both Putnam and Kripke present externalism as a critique of, and alternative to, Frege's theory of meaning. Putnam, however, was apprehensive primarily about the nonrealist theories of meaning that had circulated in the 1960s. As Frege's theory of meaning reflects his own avowed realism and champions a robust notion of reference, the question of whether, from the realist point of view, Putnam's externalism has any advantages over Frege's, naturally arises. This is one of the issues considered by Juliet Floyd in her detailed analysis of the historical context of "The Meaning of 'Meaning.'"

As Putnam's philosophy evolved, externalism proved to be central, not only to his philosophy of language, but also to his epistemology and philosophy of mind, and, as noted above, not only to the unqualified realism he had espoused prior to 1976, but also to internal realism. Let me mention two contexts where externalism plays a decisive role. *In Reason, Truth and History,* Putnam presents radical skepticism and metaphysical realism as

two expressions of the same untenable outlook. Both these positions, he argues, are premised on the possibility that we are altogether wrong about the totality of our beliefs and knowledge-claims. The skeptic's response to this concern is global doubt; the metaphysical realist's, affirmation of transcendent truth, perhaps beyond the grasp of our human minds. The similarity of these views manifests itself in the willingness of their respective proponents to entertain seriously the possibility that we are no more than brains in a vat. The merit of internal realism, Putnam maintains, is that it need not even consider the brains-in-a-vat hypothesis. Indeed, using his externalist criteria for meaning, Putnam can demonstrate that the very formulation of this hypothesis violates the conditions for meaningful discourse. The insights of "The Meaning of 'Meaning'" thus sustain Putnam's argument against skepticism. The relationship between meaning-theoretic considerations, internal realism and the repudiation of skepticism is further explored in my contribution to this volume, "Putnam on Skepticism" (Chap. 5).

Another context where externalism is invoked is that of Putnam's critique of platonism. In *The Threefold Cord*, Putnam explains the change in his understanding of the idea of a use theory of language. Originating with Wittgenstein, the 'meaning as use' rubric came to be widely disseminated, though variously interpreted. Whereas Putnam initially conceived of use as "described largely in terms of computer programs in the brain," a conception completely alien to Wittgenstein, he later adopted an internal interpretation of use: "On this alternative picture . . . the use of words in a language game cannot, in most cases, be described without employing the vocabulary of that game or a vocabulary internally related to the vocabulary of that game" (1999, 14). Here internal realism and the externalist conception of meaning combine to create a philosophy of language that is neither naturalistic nor platonistic. On the one hand, meaning is conceptual all the way down, and thus irreducible to the empirical; on the other, concepts are not platonic entities, but evolve through interaction between speakers and their environment. To take one of Putnam's examples, to speak of coffee tables it does not suffice for us merely to have the concept of a coffee table, but we must be in contact with *actual* coffee tables. Yet to be in such contact – for instance, to see an actual coffee table – we need to have the concept of a coffee table and know that it is a coffee table we are looking at. In "The Face of Perception," Charles Travis reflects on the externalist aspects of internal realism, explaining precisely why Putnam's conception of meaning undermines platonism and essentialism.

Philosophy of Mind: Functionalism and Beyond

The 1960s ushered in a series of papers in which Putnam advanced a novel approach to the philosophy of mind, an approach that has come to dominate the philosophy of mind and cognitive science. The new approach, known as functionalism, endeavors to secure the autonomy of mind without positing a nonphysical mind-substance: "The question of the autonomy of our mental life does not hinge on and has nothing to do with that all too popular . . . question about matter or soul-stuff. We could be made of Swiss cheese and it wouldn't matter" (1975b, 291). What matters, Putnam argued, is functional organization. His guiding analogy for functional organization was the computer, or, more accurately, the Turing machine. Evidently, different machines need not share the same hardware to carry out the same computation. Similarly, Putnam claimed, pain-states, or jealousy-states, can be functionally alike though physically different. In other words, each pain-token has a physico-chemical realization, but no reduction of pain as a general type to a given physico-chemical state is assumed. The computer analogy suggests that mental states are syntactically characterized computational states, the projected research program being to provide the 'software' for their interaction.

In the late 1970s, Putnam began to reconsider this proposal. Here too, the externalist insights of "The Meaning of 'Meaning'" proved to have far-reaching implications, providing a compelling argument against the view that the mind is a solipsistic lockbox of sensations. Thinking of something, a vacation, say, seems like a simple enough example of a mental state, but if, as Putnam now began to think, there are external determinants of meaning, then meanings cannot be identified with internal computational states. Some theorists, notably Fodor and Block, attempted to save the computational account by invoking the distinction between narrow and wide content, a distinction set out by Putnam in "The Meaning of 'Meaning.'" While acknowledging the contribution of physical and cultural environments to meaning in the wide sense, they held onto computationalism with respect to meaning in the narrow sense. Apprehension about intentionality led Putnam to reject this solution. As he argued in *Representation and Reality*, narrow-content computationalism is still an attempt to reduce the intentional to the nonintentional. But since even meaning in the narrow sense calls for interpretation – attribution of beliefs – which in turn calls for charity and reasonableness, intentionality cannot be eliminated. Functionalism had conceived the computational level to be autonomous, that is, irreducible to, even if supervenient on, the physico-chemical level. Putnam's critique

of functionalism is equally applicable to the question of the autonomy of the mental vis-à-vis the computational. The story of functionalism is told by Oron Shagrir in "The Rise and Fall of Computational Functionalism."

The Philosophy of Quantum Mechanics

Decades of debate over the interpretation of quantum mechanics have only deepened the sense that, despite its empirical success, quantum theory is replete with conceptual difficulties, impelling Putnam to expend a great deal of philosophical effort on its interpretation. Heisenberg's uncertainty principle imposes a limit on the precision with which the values of certain pairs of physical parameters, such as position and momentum, or different spin components, can be measured simultaneously. On the Copenhagen interpretation, this principle implies that it is meaningless to ascribe simultaneous and determinate values to such pairs of physical parameters, whether or not they are actually being measured. Since, however, when any one magnitude is measured separately, a sharp value is obtained, it appears that it is measurement itself that creates the transition, better known as the collapse, from the indeterminate to the well-defined state. If so, measurement does not reflect a state objectively existing prior to measurement, but rather a state of its own creation. Realists are offended by both the inference from the impossibility of measurement to the meaninglessness of concepts, and the nonclassical understanding of measurement. In "The Logic of Quantum Mechanics" (1975a, 10), Putnam proposed that these difficulties could be overcome by adopting a nondistributive logic first suggested in the context of quantum mechanics by Birkhoff and von Neumann in 1936, and developed by David Finkelstein in the 1960s. In light of the traditional gulf between factual and logical truth, the idea that logic can be revised on the basis of empirical considerations was revolutionary. Putnam saw the situation as analogous to the merging of physics and geometry into an interdependent whole in the framework of general relativity.

Quantum logic raises several questions. First, it is not clear that it is a *logic*, a way of reasoning, rather than a calculus that happens to fit the structure of the Hilbert space of quantum mechanics. Second, the idea that realism can be saved by rejecting classical logic, generally seen as constitutive of realism, seems paradoxical. Putnam's operational definition of the quantum-logical operators, intended to strengthen the analogy with logic, obscures the connection to realism. Third, work on the foundations of quantum mechanics by theorists such as Bell, Gleason, and Kochen and Specker, puts unbearable strain on the realist interpretation of quantum

mechanics. Indeed, "Quantum Mechanics and the Observer" (1983, 14), written after Putnam had already moved away from his early realism, is premised on a verificationist understanding of quantum logic. The main thrust of the paper, however, is to argue for yet another interpretation of quantum mechanics – perspectivism – attributed by Putnam to von Neumann. Like quantum logic, perspectivism is a way of avoiding collapse of the wave-function upon measurement. Collapse, on this interpretation, is not a physical process, but an epiphenomenon created by the shift from one perspective to another. Different perspectives, Putnam argued, are empirically equivalent and are all congruent with the predictions of quantum mechanics, hence, they are equally legitimate; but perspectives exclude each other in the sense that statements made from different perspectives cannot be combined to form a quantum state. Realism can be sustained within each perspective, but not across perspectives. Although this seemed an attractive way to avoid metaphysical realism while retaining 'internal' realism, upon realizing that in some cases different perspectives are not empirically equivalent, Putnam became dissatisfied with perspectivism. Even though he no longer subscribes to quantum logic, this provocative research program still garners much attention. In this volume, two chapters are devoted to the philosophy of quantum mechanics: Nancy Cartwright's "Another Philosopher Looks at Quantum Mechanics" addresses the question of the place of Putnam's views on quantum mechanics in his more general philosophy of science; Tim Maudlin undertakes a searching analysis and critique of quantum logic in "The Tale of Quantum Logic."

The Fact/Value Dichotomy and Other Dualities

Putnam is, in general, averse to dualisms. Mind and body, mind and world, fact and value, observation and theory, truth and convention, the analytic and the synthetic, are just some of the dichotomies Putnam has systematically criticized over the years. He has had recourse to various strategies for avoiding such dichotomies. Some dichotomies are simply elaborated on to yield a richer spectrum of possibilities; others are rejected on different grounds. In the case of mind-body dualism, Putnam has argued, as we saw, that generations of philosophers have put excessive emphasis on the ontological question of what the mind is made of rather than on the question of how it functions. He thus rejects the idea that there is an ontological basis for mind-body dualism. Mind and world, he argues, are intertwined in a different way, a way that is perhaps best captured by his dictum, "the mind and the world jointly make up the mind and the world" (1981, xi). Putnam

associates the critique of traditional dualisms with the pragmatist tradition, whose champions have indeed questioned such deep-seated dichotomies as that between fact and value. But given the vigor of his protest against what he sees as oversimplified distinctions, it seems that above and beyond his endorsement of the pragmatist orientation, his critique reflects a personal predilection for complexity.

The distinction between the analytic and the synthetic is a good example. The nature of logical and mathematical truth has been an ongoing concern for Putnam, yielding several different positions. Repudiation of the standard alternatives, platonism and conventionalism, has, however, remained a constant. The former, he asserts, is, given the conceptual revolutions in twentieth-century physics, obsolete; the latter, empty: as Lewis Carroll, Wittgenstein and Quine pointed out, conventions cannot ground logic because logic is required for their application. In "It Ain't Necessarily So" (1975a, 15), Putnam proposed replacing necessary truth with the more flexible notion of relative necessity, necessity within a specific conceptual horizon. Necessary truths of this kind, while not to be construed as true in all possible worlds, are not as easily refuted as ordinary synthetic assertions. Later, in "Analyticity and Apriority" (1983, 7), Putnam argued that some logical truths are constitutive of rationality and, as such, cannot be rationally revised, whereas others are defeasible. This view is further elaborated in "Rethinking Mathematical Necessity" (1994, 12), where Putnam presents logical truths as "formal presuppositions of thought" rather than as truths in the ordinary sense. While opposed to the conventionalist account of logic and mathematics, Putnam treasures another insight of conventionalism: the possibility of theories (or descriptions) that appear to be incompatible but are nonetheless equivalent in some specified sense – empirically equivalent, or interpretable in each other's vocabulary. He concurs with the conventionalist's claim that preference for one such alternative over others is a matter of cognitive norm. Conventionalists, however, use the infiltration of norms into the scientific process as an argument against the objectivity of science, whereas Putnam, who rejects the fact/value dichotomy, refuses to identify the normative with the subjective.

The fact/value dichotomy is misguided, in Putnam's view, due to the intractable entanglement of facts and values. Typically, he argues, descriptions of facts are value-laden, and value judgments contain factual elements. When someone is described as cruel, generous, envious or what have you, the description cannot be distilled, so to speak, into a purely factual report and an evaluation. Attempting to do so, by, for instance, unpacking cruelty into taking pleasure in the suffering of others, will not do away with

the normative component. Whereas upholders of the dichotomy usually maintain, in addition, that factual judgments, unlike value judgments, are subjective, Putnam casts doubt on this further dichotomy as well. On the one hand, he contends that some value judgments are as objective as human judgments can get, and others more negotiable; on the other, he argues that the establishment of facts, even in the sciences, hinges on negotiable values such as simplicity and elegance. Though critique of the fact/value dichotomy has been a recurrent theme in Putnam's work since 1978, it has only recently become sufficiently central to inspire a comprehensive treatment, *The Collapse of the Fact/Value Dichotomy*, on which Richard J. Bernstein reflects in his contribution to the volume "The Pragmatic Turn: The Entanglement of Fact and Value."

The Collapse of the Fact/Value Dichotomy marks another turning point in Putnam's philosophy. For the first time, he addresses at length questions in social, political and economic theory. The ethical perspective, which has become ever more salient in Putnam's work over the past two decades, has broadened to encompass communities and their political organization. This is the type of philosophical engagement that calls to mind the heritage of American pragmatism, Dewey's in particular.

Whereas Putnam's philosophy of language has come to be increasingly influenced by Wittgenstein, his understanding of his calling as a philosopher seems profoundly different from Wittgenstein's. Wittgenstein's inspiration is manifest in Putnam's internal realism, his insistence that we have no way of shedding our conceptual skin, and his contention that the language-world relation so integral to our conceptual apparatus cannot be naturalized. Dewey's inspiration, on the other hand, is manifest in Putnam's socially oriented moral vision. Remarkably, both these very different leitmotifs are captured by a single metaphor: Putnam's philosophy is (to allude to his own allusion to Dubcek), above all, philosophy with a human face.

Notes

1. The problem was to find an algorithm deciding the solvability of diophantine equations; the proof was completed by Yuri Matiyasevich in 1970.
2. Putnam (1999, 14). Here, what Putnam means is that he now ascribes a different meaning to one of the terms in the earlier quotation, the 'use' of language.
3. Daniel Isaacson, "Carnap, Quine and Logical Truth," in David Bell and Wilhelm Vossenkuhl (eds.), *Science and Subjectivity; The Vienna Circle and Twentieth Century Philosophy* (Berlin: Akademie Verlag Berlin, 1992), 100–130, quotation on 123. X, Y and L stand for Quine, Carnap and logical truth, respectively.
4. "Realism and Reason," Putnam (1978, 123–138).

5. Putnam uses a variety of locutions to refer to this 'third way' – among them, internal realism, pragmatic realism, commonsense realism, natural realism, or just realism (as opposed to Realism).

6. Putnam (1975b, 215–271), but see also the immediately preceding "Explanation and Reference" (1975b, 196–214), which complements "The Meaning of 'Meaning.'" "The Meaning of 'Meaning'" argues that the same image can be associated with different meanings; "Explanation and Reference," that different theories can refer to the same entities.

7. One of the points that became clear with the transition to internal realism is that the notion of causality itself is unpacked differently by metaphysical and internal realists. Thus one can no longer ascribe to Putnam a causal theory of reference, or indeed, a *theory* of reference at all, without further specification.

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